

Claims

What is claimed is:

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1 1. A biomedical implant designed for implantation into a spine of a patient comprising  
2 an elongated body having first and second ends, said elongated body being tapered such  
3 that tapering begins at a first position on or proximate to said first end and continues  
4 down the length of the elongated body down to a second position on or proximate to said  
5 second end, wherein said implant is comprised of cortical, cortico-cancellous, or  
6 cancellous bone.

1 2. The biomedical implant of claim 1 wherein said elongated body defines a substantially  
2 dowel-like shape.

1 3. The biomedical implant of claim 1 wherein said first end comprises one or more  
2 insertion holes formed into said first end such that said insertion holes are oriented along  
3 the longitudinal axis of said biomedical implant, wherein said holes are configured to  
4 engage a securing device.

1 4. The biomedical implant of claim 1 wherein said one or more insertion holes define a  
2 circular, triangular, quadrangle, pentagonal, hexagonal, heptagonal or octagonal shape, or  
3 combination thereof, and said securing device comprises inserts configured to match the  
4 shape of said insertion holes.

1 5. The biomedical implant of claim 1 wherein said first end defines a wedge shape for  
2 engaging a securing device.

1 6. The biomedical implant of claim 4 wherein said wedge shape comprises two or more  
2 substantially planar sections that are angled obliquely in relation to the exterior surface of  
3 said elongated body.

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- 1 7. The biomedical implant of claim 4, wherein said wedge shape corresponds to the  
2 natural architecture of the bone from which said biomedical implant is made.
- 1 8. The biomedical implant of claim 1, wherein said first end has two or more pinch cut  
2 outs formed thereon.
- 1 9. The biomedical implant of claim 1, wherein said implant comprises a channel formed  
2 through said elongated body such that said channel is positioned transverse to the  
3 longitudinal axis of said implant, said channel being adapted to have a biologically active  
4 substance disposed therein.
- 1 10. The biomedical implant of claim 1, wherein said first end defines a peg portion  
2 extending longitudinally therefrom, said peg portion configured to engage a securing  
3 device.
- 1 11. A biomedical implant designed for implantation into the spine of a patient  
2 comprising two or more separate sections that are configured such that said two or more  
3 separate sections can be joined together, wherein upon said two or more separate sections  
4 being joined, an implant is formed comprising an elongated body having a first and  
5 second ends, said elongated body being tapered such that tapering begins at a first  
6 position on or proximate to said first end and continues down the length of the elongated  
7 body down to a second position on or proximate to said second end.
- 1 12. The biomedical implant of claim 11, wherein said implant is comprised of cortical,  
2 cortico-cancellous, or cancellous bone, or a combination thereof.
- 1 13. The biomedical implant of claim 11, wherein said two or more sections comprise  
2 joining holes formed therein such that said two or more sections are joined together by  
3 insertion of pins through said joining holes.

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1 14. The biomedical implant of claim 13, wherein said pins are comprised of cortical  
2 bone.

1 15. A method of producing a biomedical implant that comprises an elongated body  
2 having a first and second ends wherein said first end comprises two or more oblique  
3 sides, said method comprising obtaining a bone having a ridge naturally formed thereon  
4 and excising bone block sections from said bone at an angle substantially perpendicular  
5 to said ridge.

1 16. The method of claim 15, wherein said bone is selected from a bone selected from the  
2 group consisting of femur, tibia, fibula, humerus, radius and ulna.

1 17. The implant according to claim 1 comprising a plurality of holes formed therein,  
2 optionally connecting to a central channel formed in said implant, to aid in delivery of a  
3 biologically active substance disposed on or within the implant to surrounding tissue.

1 18. The implant of claim 17 wherein said biologically active substance comprises one or  
2 more substances selected from the group consisting of cells, growth factors, antibiotics,  
3 nucleic acids, proteins, peptides, antineoplastics, and anti-inflammatory compounds.

1 19. The implant according to claim 1 formed substantially from human, allograft cortical  
2 bone or xenograft bone.

1 20. A method of treating a defect or injury to the spine comprising obtaining a  
2 biomedical implant, said biomedical implant comprising an elongated body having first  
3 and second ends, said elongated body being tapered such that tapering begins at a first  
4 position on or proximate to said first end and continues down the length of the elongated  
5 body down to a second position on or proximate to said second end, wherein said implant  
6 is comprised of cortical, cortico-cancellous, or cancellous bone; and implanting said  
7 implant into a location in the spine to effect support at that location.

1 21. The method of claim 20, wherein said biomedical implant comprises two or more  
2 sections joined together.

12221. The method of claim 20, wherein said implant comprises a channel formed through  
2 said elongated body such that said channel is positioned transverse to the longitudinal  
3 axis of said implant, said channel being adapted to have a biologically active substance  
4 disposed therein.

12322. A method for fusing vertebrae which comprises making a space between the  
2 vertebrae to be fused, and inserting into said space a biomedical implant, said biomedical  
3 implant comprising an elongated body having first and second ends, said elongated body  
4 being tapered such that tapering begins at a first position on or proximate to said first end  
5 and continues down the length of the elongated body down to a second position on or  
6 proximate to said second end, wherein said implant is comprised of cortical, cortico-  
7 cancellous, or cancellous bone.

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